Division of Information Technology Services
Technical Bulletin

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Batch NATURAL Calling COBOL II

Our current NATURAL release level is NAT216. The product vendor, Software AG, has made available new recommended procedures for NATURAL calling COBOL II with this release. These procedures apply only to the batch environment. Included with this bulletin is the documentation for these new procedures.

Existing NATURAL calling COBOL procedures will contine to work.

We encourage customers to move these new procedures.

The module NATDMNS0 referenced in these procedures is found in load library DB.NATURAL.Load.

If you have questions or problems concerning this procedure contact Data Base Administration at 538-3235.

Member Name BATSAMPL

Calling COBOL From a NATURAL Progbram in Batch

In the OS environment, various levels of the COBOL compiler will not require this procedure. In almost all cases for VSE this procedure is required. In either OS or VSE systems, using COBOL II requires this procedure.

The following procedure may be used to set up a batch NATURAL session to call a COBOL routine. It is required by COBOL that when COBOL is used as a subprogram that the calling program indicates whether or not it is a COBOL program.

For example, PGMA CALLS PGMB
PGMA IS COBOL AND PGMB IS COBOL

If PGMA is not COBOL then a switch from COBOL ILBDMNSO must indicate that PGMA is

not COBOL. ILBDMNSO is an IBM COBOL logic module that gets auto-linked when linking COBOL. When NATURAL calls COBOL this logic module must be set correctly. In most on-line environments, this is transparently done and this procedure can be ignored. But for batch environments, it is normally required and the following procedure may be used.

If PGMA is COBOL, then there are no additional considerations.

As of NAT215 and above, a module called NATDMNSO is provided on the OS NATURAL load library and the VSE Relocatable (Object) Library. This module may be linked with the COBOL routine to accomplish the correct switch setting. If you are at NAT214 or below, the source for NATDMNSO is given at the end of the routine.

In the Past, software A.G. has recommended the use of SAGTIP010 for VSE users and SAGTIP012 for OS users. These two methods are now obsolete and the following simplified procedure may be used as a guideline for building your own batch NATURAL sessions calling COBOL subprograms.

Step 01—Compile COBOL Sample Routine

```
IDENTIFICATION DIVISION.
PROGRAM-ID. COBOLRTN.
REMARKS.   THIS PROGRAM ILLUSTRATES A BATCH NATURAL
           SESSION CALLING AN COBOL ROUTINE IN BATCH.
           THIS PROGRAM IS A SIMPLIFIED VERSION OF THE
           EXAMPLE FOUND IN THE NATURAL REFERENCE MANUAL
           FOR THE CALL STATEMET.
ENVIRONMENT DIVISION.
DATA DIVISION.
WORKING-STORAGE SECTION.
LINKAGE SECTION.
01      LNKGE-DATA.
        02      COUNTRY-CODE            PIC X(3).
        02      COUNTRY-NAME            PIC X(15).
PROCEDURE DIVISION USING LNKGE-DATA.
P-CONVERT.
        MOVE SPACES TO COUNTRY-NAME.
        IF COUNTRY-CODE = 'GER' MOVE 'GERMANY' TO COUNTRY-NAME.
        IF COUNTRY-CODE = 'USA' MOVE 'UNITED STATES' TO COUNTRY-NAME.
P-RETURN.
        GOBACK.
```

STEP 02—Link COBOL with NATURAL include NATDMNSO

FOR OS, USE THE FOLLOWING LINK DIRECTIVE.

```
//SYSLIN DD *
        INCLUDE (YOURLOAD)COBOLRTN
        INCLUDE (NATLIB)NATDMNSO  *
ENTRY COBOLRTN                    **
NAME COBOLRTAN(R)
/*
```

FOR VSE, USE THE FOLLOWING LINK DIRECTIVE.

```
// OPTION CATAL
ACTION SMAP,CLEAR
        PHASE COBOLRTN.*
                INCLUDE COBOLRTN
                INCLUDE NATDMNSO      *
        ENTRY COBOLRTN                **
/*
// EXEC LNKEDT
/&
```

*Note—NATDMNSO may be found in the NATURAL load library for OS or the relocatable (Object) library for VSE.

**The entry point of the COBOL routine.

Step 03—NATURAL Batch Session/Test COBOL CALL

OS EXAMPLE

```
//CMSYNIN DD *
ADHOC
RESET #CON-CODE(A3) #CON-NAME(A15)
MOVE 'GER' TO #CON-CODE
WRITE NOTITLENOHDR #CON-CODE #CON-NAME
CALL 'COBOLRTN' #CON-CODE #CON-NAME
END
ENDHOC
FIN
```

VSE Example

```
// EXEC NATBATCH
DBID=XX     YOUR DYNAMIC PARAMETERS IF USED.
FNR=XX
IM=D
MADIO=0
MT=0
```

```
/*
ADARUN              ....PARAMETERS
/*
ADHOC
RESET #CON-CODE(A15)
MOVE ‘GER’ TO #CON-CODE
CALL ‘COBOLRTN’ #CON-NAME
WRITE NOTITLE NOHDR #CON-CODE #CON-NAME
END
ENDHOC
FIN
/*
/&
* $$ EOJ
```

If you are not at SM NAT215 or above, the following routine may be assembled as NATDMNSO.

```
NATDMNSO        CSECT
                USING     *,15
                ENTRY     NATDMNSO
ILBDMNSO        EQU       *
                DC        XL1'FF’
                DC        XL15'0'
                END       NATDMNSO
```